

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
7 April 2005 (07.04.2005)

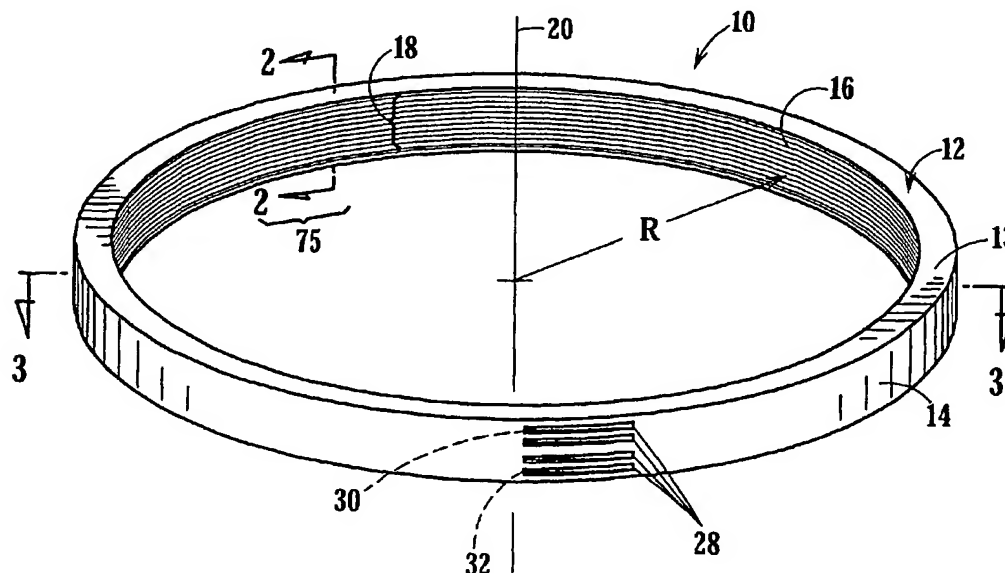
PCT

(10) International Publication Number  
**WO 2005/031401 A3**

- (51) International Patent Classification<sup>7</sup>: **G02B 6/00** (74) Agent: RAINVILLE, Peter, J.; Nufem, 7 Airport Park Road, East Granby, CT 06026 (US).
- (21) International Application Number: PCT/US2004/031723 (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 27 September 2004 (27.09.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/506,022 25 September 2003 (25.09.2003) US
- (71) Applicant (for all designated States except US): NUFERN [US/US]; 7 Airport Park Road, East Granby, CT 06026 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): SEIFERT, Martin [CA/US]; 17 High Ridge Road, West Simsbury, CT 06092 (US).
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: APPARATUS AND METHODS FOR ACCOMMODATING LOOPS OF OPTICAL FIBER



(57) Abstract: Disclosed is an optical apparatus (10, 110, 410, 610) for accommodating optical fiber, such as one or more loops of optical fiber. The optical apparatus (10, 110, 410, 610) can include a body (12, 112, 412, 612) comprising an inwardly facing surface (16, 116, 416, 616) adapted for receiving a plurality of loops of a length of optical fiber. The body (16, 116, 416, 616) can include at least a portion (75) wherein the inwardly facing surface is continuous between two adjacent loops (79). Methods and apparatus are disclosed for disposing the optical fiber with an optical apparatus (10, 110, 410, 610) for accommodating the optical fiber.



**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**(88) Date of publication of the international search report:**

4 August 2005

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/31723

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G02B 6/00  
 US CL : 385/134,135,137

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S.: 385/134,135,137

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 EAST

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 NONE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,424,784 B1 (OLSON) 23 July 2002 (23.07.2002), see entire document.	30-35 ----- 7-9, 20, 21, 34-36
X	US 5,838,858 A (WHITE) 17 November 1998 (17.11.1998), see entire document.	1, 3, 12, 13, 15
X --- Y	US 4,730,887 A (BOSCHER et al) 15 March 1988 (15.03.1988) see entire document.	1, 2, 4, 5, 10-14, 16, 17, 19, 22-29 ----- 7-9, 20, 21, 34-36

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

## \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;"

document member of the same patent family

Date of the actual completion of the international search

21 March 2005 (21.03.2005)

Date of mailing of the international search report

23 JUN 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
 Commissioner of Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Juliana Kang *James R. Matthews*

Telephone No. (571) 272-2348